Domestic Microwave—Technical Information

AMV6167BD* JMV8166BA* JMV9169BA*

- Due to possibility of personal injury or property damage, always contact an authorized technician for servicing or repair of this unit.
- Refer to Service Manual 16027128 for detailed installation, operating, testing, troubleshooting, and disassembly instructions.

⚠ CAUTION

All safety information must be followed as provided in Service Manual 16027128.

⚠ WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to microwave oven and discharge the high voltage capacitor before servicing, unless testing requires power.

Model	AMV6167BD*		JMV8166BA*		JMV9169BA*	
Power Source						
Voltage AC	120 VAC		120 VAC		120 VAC	
Frequency	60 Hz		60 Hz		60 Hz	
Single Phase, 3 wire grounded	Yes		Yes		Yes	
Power Output						
Nominal microwave energy (IEC705)	950 Watts		950 Watts		950 Watts	
Operating frequency	2450 MHz		2450 MHz		2450 MHz	
Power Consumption						
Microwave, lamp and vent fan	1500 Watts		1600 Watts		1650 Watts	
Dimensions, Exterior (Cabinet)						
Width	29 7/8"	76 cm	35 7/8"	91 cm	35 7/8"	91 cm
Height	16 15/16"	43 cm	16 15/16"	43 cm	15 15/16"	41 cm
Depth	15 21/32"	40 cm	15 7/16"	40 cm	15 1/4"	39 cm
Dimensions, Interior (Cavity)						
Width	22 1/16"	56 cm	22 1/16"	56 cm	22 1/16"	56 cm
Height	10 3/8"	26 cm	10 3/8"	26 cm	10 3/8"	26 cm
Depth	14 13/16"	38 cm	14 13/16"	38 cm	14 13/16"	38 cm
Weight (approx.)						
Uncrated	75 lbs	28 kg	75 lbs	28 kg	75 lbs	28 kg
Crated	83 lbs	30 kg	83 lbs	30 kg	83 lbs	30 kg

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Component Testing Procedures

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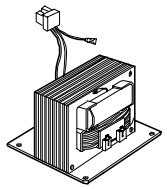
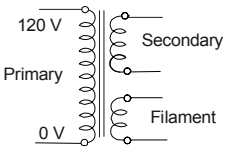
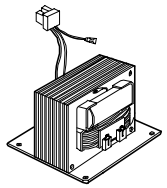
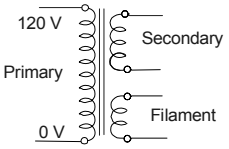
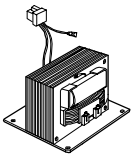
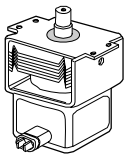
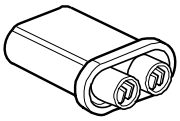
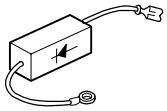
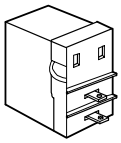
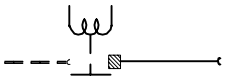
Illustration	Component	Test Procedure	Results
	High voltage transformer  *JMV9169BA*, JMV8166BA**	**Discharge Capacitor** Disconnect connector and measure continuity with meter on R x 1 scale: Secondary..... Filament..... Primary (High & Low)..... (Measure at room temp., or 70° F/ 22° C.) Measure continuity with meter on "High" scale: Primary winding to ground..... Filament winding to ground	 Approx. 118-123 Ω. Continuity. Less than 1 Ω. Infinite Ω. Infinite Ω.
	High voltage transformer  *AMV6167BD**	**Discharge Capacitor** Disconnect connector and measure continuity with meter on R x 1 scale: Secondary..... Filament..... Primary (High & Low)..... (Measure at room temp., or 70° F/ 22° C.) Measure continuity with meter on "High" scale: Primary winding to ground..... Filament winding to ground	 Approx. 65-69 Ω. Continuity. Less than 1 Ω. Infinite Ω. Infinite Ω.
	Low voltage transformer	Remove low voltage transformer from control circuit board and check: (Measure at room temp., or 70° F/ 22° C.) Between pins 1 and 2 (Input) ..... Between pins 4 and 5 (19v output)..... Between pins 6 and 7 (7.0v output)..... Between pins 7 and 8 (2.7v output).....	 Approx. 128 Ω. Approx. 2 Ω. Approx. 2 Ω. Approx. 5 Ω.
	Magnetron	**Discharge Capacitor** Remove wires from magnetron and connect ohmmeter to terminals. Also check between each terminal and ground.	**Between Terminals:** Less than 1 Ω **Each Terminal to Ground**: Infinite Ω. **NOTE:** This test is not conclusive. If microwave oven does not heat and all other components test good, replace the magnetron and retest.
	High Voltage Capacitor	**Discharge Capacitor** Remove wires from capacitor terminals and connect ohmmeter, set on highest resistance scale to terminals. Check resistance between each terminal and capacitor case.....	**Between Terminals:** Meter should momentarily indicate continuity, then 9 MΩ (deflection). A steady 9 MΩ indicates an open capacitor. Steady continuity indicates a shorted capacitor. In either case, replace capacitor. Infinite Ω.
	High Voltage Diode	**Discharge Capacitor** Remove diode lead from capacitor and connect ohmmeter. Reverse leads for second test.	Infinite resistance should be measured in one direction and several hundred KΩ in the opposite direction. **NOTE:** Ohmmeter must contain a battery of 6 volts minimum.
	Power Control Relay 	Disconnect the leads. Place water in the microwave oven and select power levels 1 through 10. Press the **START** pad. Check continuity between the terminals of the relays	

Power Level	Cycle On (Continuity)	Cycle Off (Open)
1	4 sec	26 sec
2	7 sec	23 sec
3	10 sec	20 sec
4	13 sec	17 sec
5	16 sec	14 sec
6	19 sec	11 sec
7	22 sec	8 sec
8	25 sec	5 sec
9	28 sec	2 sec
10	30 sec	0 sec

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Component Testing Procedures

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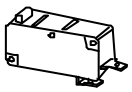
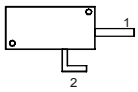
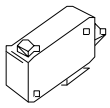
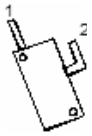
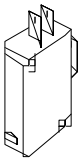
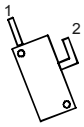
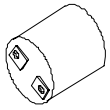
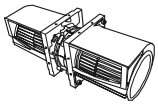
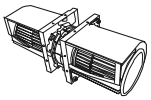
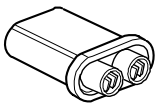
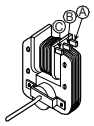
Illustration	Component	Test Procedure	Results
	Primary interlock switch test (Bottom switch) 	Measure resistance between terminals 1 and 2: Door Open ..... Door Closed.....	 Open (Infinite). Continuity.
	Secondary interlock switch test (Top switch) 	Measure resistance between terminals 1 and 2: Door Open ..... Door Closed.....	 Open (Infinite). Continuity.
	Interlock monitor switch test (Middle switch) 	Measure resistance between terminals 1 and 2: Door Open ..... Door Closed.....	 Continuity. Open (Infinite).
	Lamp receptacle	Test continuity of receptacle terminals.....	Continuity when known good bulb is inserted.
	Ventilation Motor *JMV8166BA*, AMV6167BD**	**Discharge Capacitor** Remove two wires to run capacitor and measure resistance across the wires.....	Approx. 75 Ω. (Tests all 3 windings.)
	Ventilation Motor *JMV9169BA**	**Discharge Capacitor** Remove two wires to run capacitor and measure resistance across the wires.....	Approx. 25 Ω. (Tests all 3 windings.)
	Vent Blower Motor (run) Capacitor	**Discharge Capacitor** Remove one wire from capacitor terminals and connect ohmmeter. Set on highest resistance scale.	**Between Terminals:** Meter should momentarily indicate several ohms, then return to infinity (deflection). If no deflection occurs, or if continuous deflection occurs, replace capacitor. **Terminal to Case:** Infinite resistance.
	Cavity (Flame Sensor) Thermal Cut-Out (Thermostat)	Disconnect all wires from TCO. Measure resistance across terminals	Resetable. **Open:**.....302° F (150° C). **Closed:**...140° F (60° C).
	Magnetron Thermal Cut-Out (Thermostat)	Disconnect all wires from TCO. Measure resistance across terminals.	Resetable. **Open:**.....302° F (150° C). **Closed:**...140° F (60° C).
	Hood Thermal Cut-Out (Thermostat)	Disconnect all wires from TCO. Measure resistance across terminals ..... **NOTE:** This TCO only works in an overheat condition. Otherwise, it will measure "open" when testing.	Resetable. **Open:**.....158° F (70° C). Vent fan engaged. **Closed:**...104° F (40° C). Vent fan disengaged.
	Bottom Thermal Cut-Out (Thermostat)	Disconnect all wires from TCO. Measure resistance across terminals.	Non–resetable. **Open:**.....248° F (120° C).
	Fan motor	Remove all wires from motor. Measure resistance	 Approx. 28-35 Ω Infinite or several, motor is defective.

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Component Testing Procedures

⚠ WARNING

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Illustration	Component	Test Procedure	Results
	Sensor	Remove the red and black wires, connect meter to red and black wires and measure continuity..... **NOTE:** Do not connect the meter to the white and orange wires, as this may damage the sensor.	30 Ω.
	Sensor Test *JMV8166BA*, JMV9169BA**	Apply power to microwave for 5 minutes. Press AUTO DEFROST and REHEAT pads simultaneously and monitor display for V-Out value.....	Less than 6 ..... Sensor failure. 15 to 185..... Normal. More than 213..... Sensor failure.
	Sensor Test *AMV6167BD**	Apply power to microwave for 5 minutes. Press AUTO DEFROST and POPCORN pads simultaneously and monitor display for V-Out value.....	Less than 6 ..... Sensor failure. 15 to 185..... Normal. More than 213..... Sensor failure.
	Stirrer Motor (Synchronous Motor)	Measure voltage across terminals..... Measure resistance across terminals.....	Approx. 120 VAC. Approx. 108 to 132 Ω.
	Turntable Drive Motor (Synchronous Motor)	Measure voltage across terminals..... Measure resistance across terminals.....	Approx. 120 VAC. Approx. 108 to 132 kΩ.
	Damper Motor	Measure voltage across terminals..... Measure resistance across terminals.....	Approx. 120 VAC. Approx. 3 to 4 kΩ.
	Louvre Motor	Measure voltage across terminals..... Measure resistance across terminals.....	Approx. 120 VAC. Approx. 3100 to 3900 kΩ.
	Convection motor	Remove all wires from motor. Measure resistance across coil.....	Approx. 14.5 to 17 Ω.
	Convection heater element	Remove all wires from heater. Measure resistance across terminals.....	Approx. 15 to 25 Ω (70° F, 20° C).
	Grill heater element *JMV9169BA**	Remove all wires from heater. Measure resistance across terminals.....	Approx. 15 to 25 Ω (70° F, 20° C).

Error Code Table

Error Code	Explanation	Possible Cause
SE	Keypad shorted 10 seconds or longer.	Sticky keypad(s).
E03	Convection motor or convection heater open.	Motor and/or heater unplugged, wiring or PCB.
E11	Gas sensor open error.	Sensor unplugged, wiring or PCB.
E12	Gas sensor short error.	Sensor unplugged, wiring or PCB.
E21	Thermal sensor open error.	Sensor unplugged, wiring or PCB.
E22	Thermal sensor short error.	Sensor unplugged, wiring or PCB.
E23	PREHEAT did not reach preset temperature within 30 minutes. Preheat cycle canceled.	Convection heater or grill heater unplugged, wiring or PCB.
E24	Microwave temperature reaches 500° F (260° C) in an overheat condition. Microwave cancels all functions.	Thermal or gas sensor, wiring or PCB.

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Power Test (Traditional Test Method)

Test equipment required is Amana power test kit R0157397 (Fahrenheit), or
Menumaster power test kit M95D5 (Celsius).

1. Fill the plastic container to the 1000 ml. line with cool tap water.
2. Using the thermometer; stir the water, measure, and record the water temperature.
   Initial water temperature should be approximately 60° F (16° C).
3. Place container on the center of the oven shelf and heat the water for
   33 seconds for ovens with more than 1550 watts or 63 seconds for ovens with less than 1550 watts.

NOTE: Use a watch second hand, not the oven timer.

4. Stir the water, measure and record the temperature of the water after heating time is complete.
5. Subtract the starting water temperature (Step 2), from the ending water temperature (Step 4) to obtain the temperature rise (ΔT).
6. See the Traditional Power Test Temperature Chart below.

NOTES:
- The IEC-705 test method requires precision measurements and equipment. It is not practical to perform the IEC test in the field. To convert the traditional power test results to the approximate IEC-705 rating, take the traditional power test results and add 100 watts per magnetron for the unit being tested.

  Example:

	850	watts output using the traditional power test
	+ 100	watts (1 magnetron X 100 watts)
	950	Approximate IEC-705 results

- Always perform power test three times for accuracy, changing the water after each test is performed.
- Variation or errors in the test procedure will cause a variance in the temperature rise. Additional power tests should be made if temperature rise appears marginal.
- Low line voltage will cause lower temperature rise.

Traditional Power Test Temperature Chart

SIXTY-THREE (63) SECONDS run time chart for units less than 1550 Watts cooking power

Fahrenheit				Celsius			
ΔT (° F)	Cooking Power Output	ΔT (° F)	Cooking Power Output	ΔT (° C)	Cooking Power Output	ΔT (° C)	Cooking Power Output
16	620	23	891	7	490	15	1050
17	659	24	930	8	560	16	1120
18	697	25	969	9	630	17	1190
19	736	26	1007	10	700	18	1260
20	775	27	1046	11	770	19	1330
21	814	28	1085	12	840	20	1400
22	852	29	1124	13	910	21	1470
				14	980	22	1540

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Component	Test Procedure	Results		
Touch Panel/Control Panel	Removal of Touch Pad/Control Panel is required to perform test.	**Pad**	**Trace**	**Measurement**
		0	5 & 13	Continuity
		1	6 & 12	Continuity
		2	5 & 12	Continuity
		3	4 & 12	Continuity
AMV6167BD*	Check for continuity.	4	3 & 12	Continuity
		5	2 & 12	Continuity
	When touched: Less than 400 Ω	6	9 & 13	Continuity
		7	8 & 13	Continuity
		8	7 & 13	Continuity
	When not touched: More than 1 mega Ω	9	6 & 13	Continuity
		Control Setup	2 & 10	Continuity
		Pizza Slice	3 & 10	Continuity
		Baked Potato	4 & 10	Continuity
		Popcorn	5 & 10	Continuity
		Combination Cooking	6 & 10	Continuity
		Convection	8 & 10	Continuity
		Clock	2 & 11	Continuity
		Micro. Convection	4 & 11	Continuity
		Auto Cook	6 & 11	Continuity
		Auto Defrost	7 & 11	Continuity
		Reheat	8 & 11	Continuity
		Sensor Cook	9 & 11	Continuity
		Option	1 & 12	Continuity
		Snacks	8 & 12	Continuity
		Soften/Melt	9 & 12	Continuity
		Stop/Clear	2 & 13	Continuity
		Enter/Start	3 & 13	Continuity
		Power Level	4 & 13	Continuity
		Kitchen Timer	2 & 14	Continuity
		Delay Off	3 & 14	Continuity
		5 Speed	4 & 14	Continuity
		On/Off	5 & 14	Continuity
		Light Timer	6 & 14	Continuity
		Light Hi/Lo/Off	7 & 14	Continuity
		Turntable On/Off	8 & 14	Continuity
		Add 30 Seconds	9 & 14	Continuity

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Component	Test Procedure	Results		
Touch Panel/Control Panel ***JMV8166BA******	Removal of Touch Pad/Control Panel is required to perform test. Check for continuity. When touched: Less than 400 Ω When not touched: More than 1 mega Ω	**Pad**	**Trace**	**Measurement**
		0	5 & 13	Continuity
		1	6 & 12	Continuity
		2	5 & 12	Continuity
		3	4 & 12	Continuity
		4	3 & 12	Continuity
		5	2 & 12	Continuity
		6	9 & 13	Continuity
		7	8 & 13	Continuity
		8	7 & 13	Continuity
		9	6 & 13	Continuity
		Control Setup	2 & 10	Continuity
		Pizza Slice	3 & 10	Continuity
		Baked Potato	4 & 10	Continuity
		Popcorn	5 & 10	Continuity
		Combination Cooking	6 & 10	Continuity
		Convection	8 & 10	Continuity
		Clock	2 & 11	Continuity
		Micro. Convection	4 & 11	Continuity
		Auto Cook	6 & 11	Continuity
		Auto Defrost	7 & 11	Continuity
		Reheat	8 & 11	Continuity
		Sensor Cook	9 & 11	Continuity
		Option	1 & 11	Continuity
		Snacks	8 & 12	Continuity
		Soften/Melt	9 & 12	Continuity
		Stop/Clear	2 & 13	Continuity
		Enter/Start	3 & 13	Continuity
		Power Level	4 & 13	Continuity
		Kitchen Timer	2 & 14	Continuity
		Delay Off	3 & 14	Continuity
		5 Speed	4 & 14	Continuity
		On/Off	5 & 14	Continuity
		Light Timer	6 & 14	Continuity
		Light Hi/Lo/Off	7 & 14	Continuity
		Turntable On/Off	8 & 14	Continuity
		Add 30 Seconds	9 & 14	Continuity

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Touch Panel/Control Panel	Removal of Touch Pad/Control Panel is required to perform test.	**Pad**	**Trace**	**Measurement**
		0	5 & 13	Continuity
		1	6 & 12	Continuity
		2	5 & 12	Continuity
	Check for continuity.	3	4 & 12	Continuity
		4	3 & 12	Continuity
JMV9169BA*	When touched:	5	2 & 12	Continuity
	Less than 400 Ω	6	9 & 13	Continuity
		7	8 & 13	Continuity
	When not touched:	8	7 & 13	Continuity
	More than 1 mega Ω	9	6 & 13	Continuity
		Control Setup	2 & 10	Continuity
		Pizza Slice	3 & 10	Continuity
		Baked Potato	4 & 10	Continuity
		Popcorn	5 & 10	Continuity
		Combination Cooking	6 & 10	Continuity
		Broil	7 & 10	Continuity
		Convection	8 & 10	Continuity
		Clock	2 & 11	Continuity
		Auto Broil	3 & 11	Continuity
		Micro. Convection	4 & 11	Continuity
		Auto Cook	6 & 11	Continuity
		Auto Defrost	7 & 11	Continuity
		Reheat	8 & 11	Continuity
		Sensor Cook	9 & 11	Continuity
		Snacks	8 & 12	Continuity
		Soften/Melt	9 & 12	Continuity
		Stop/Clear	2 & 13	Continuity
		Enter/Start	3 & 13	Continuity
		Power Level	4 & 13	Continuity
		Kitchen Timer	2 & 14	Continuity
		Delay Off	3 & 14	Continuity
		5 Speed	4 & 14	Continuity
		On/Off	5 & 14	Continuity
		Light Timer	6 & 14	Continuity
		Light Hi/Lo/Off	7 & 14	Continuity
		Turntable On/Off	8 & 14	Continuity
		Add 30 Seconds	9 & 14	Continuity

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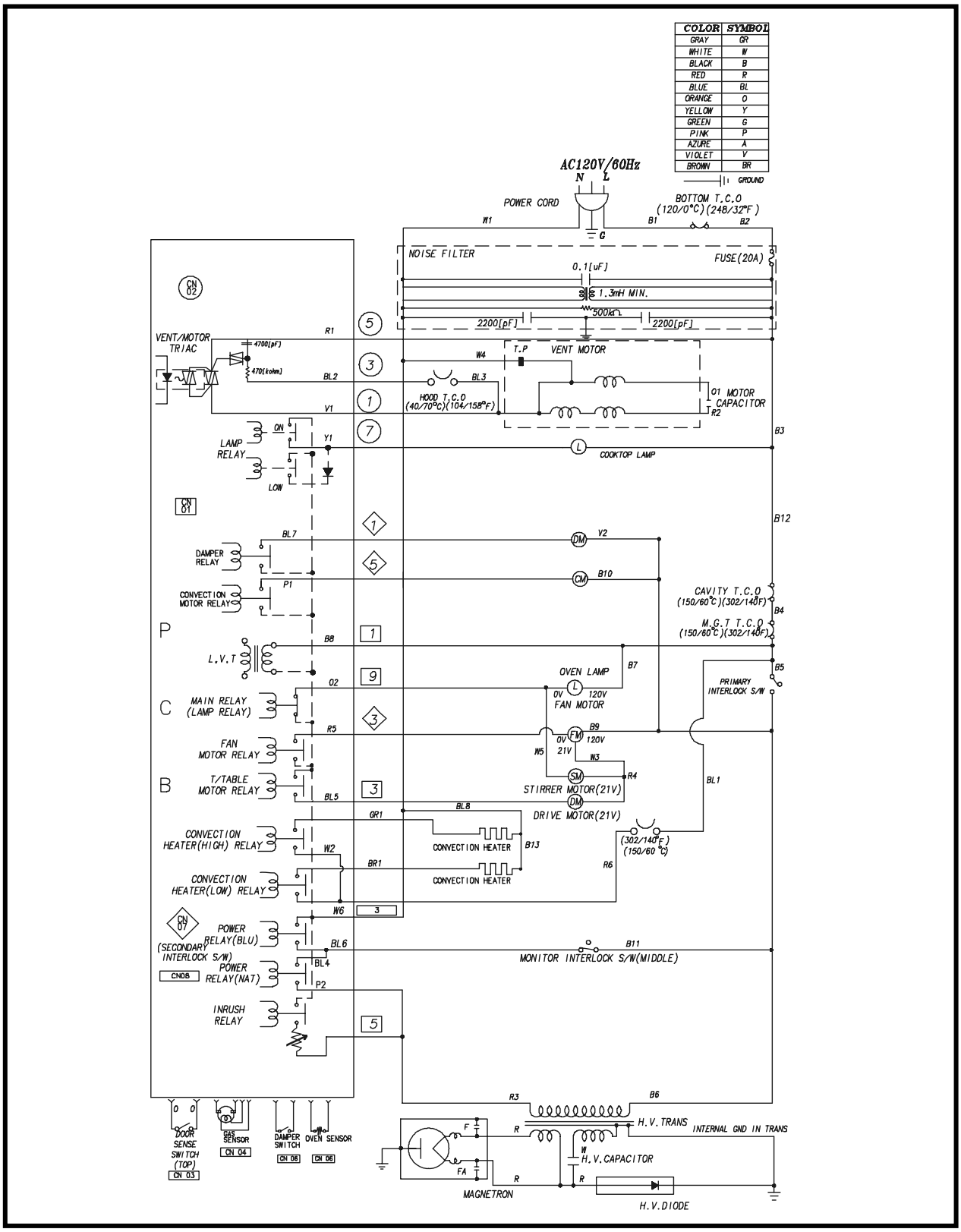
Wiring Diagram and Schematic

WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to microwave oven and discharge the high voltage capacitor before servicing, unless testing requires power.



AMV6167BD* Schematic Diagram

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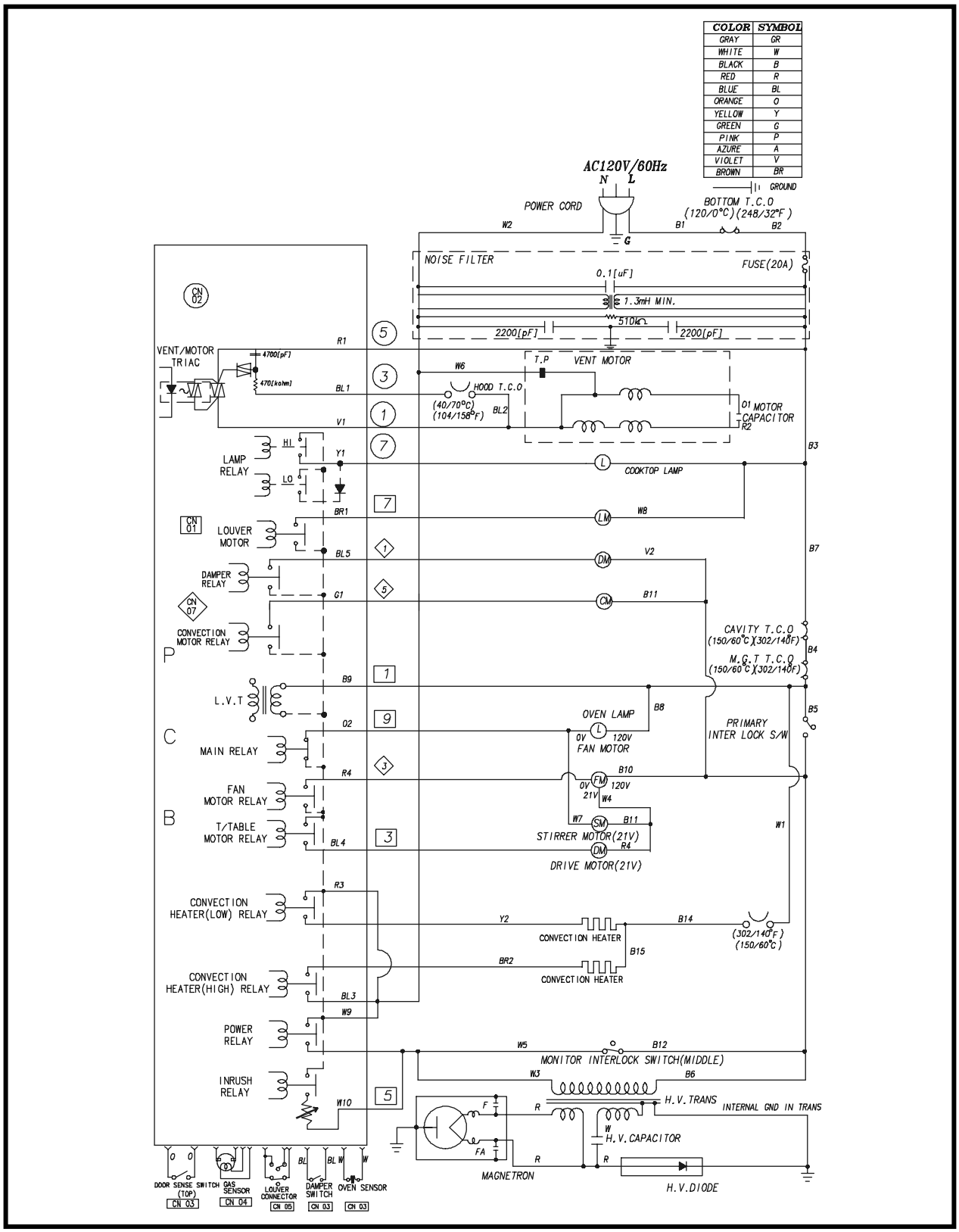
Wiring Diagram and Schematic

WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to microwave oven and discharge the high voltage capacitor before servicing, unless testing requires power.



JMV8166BA* Schematic Diagram

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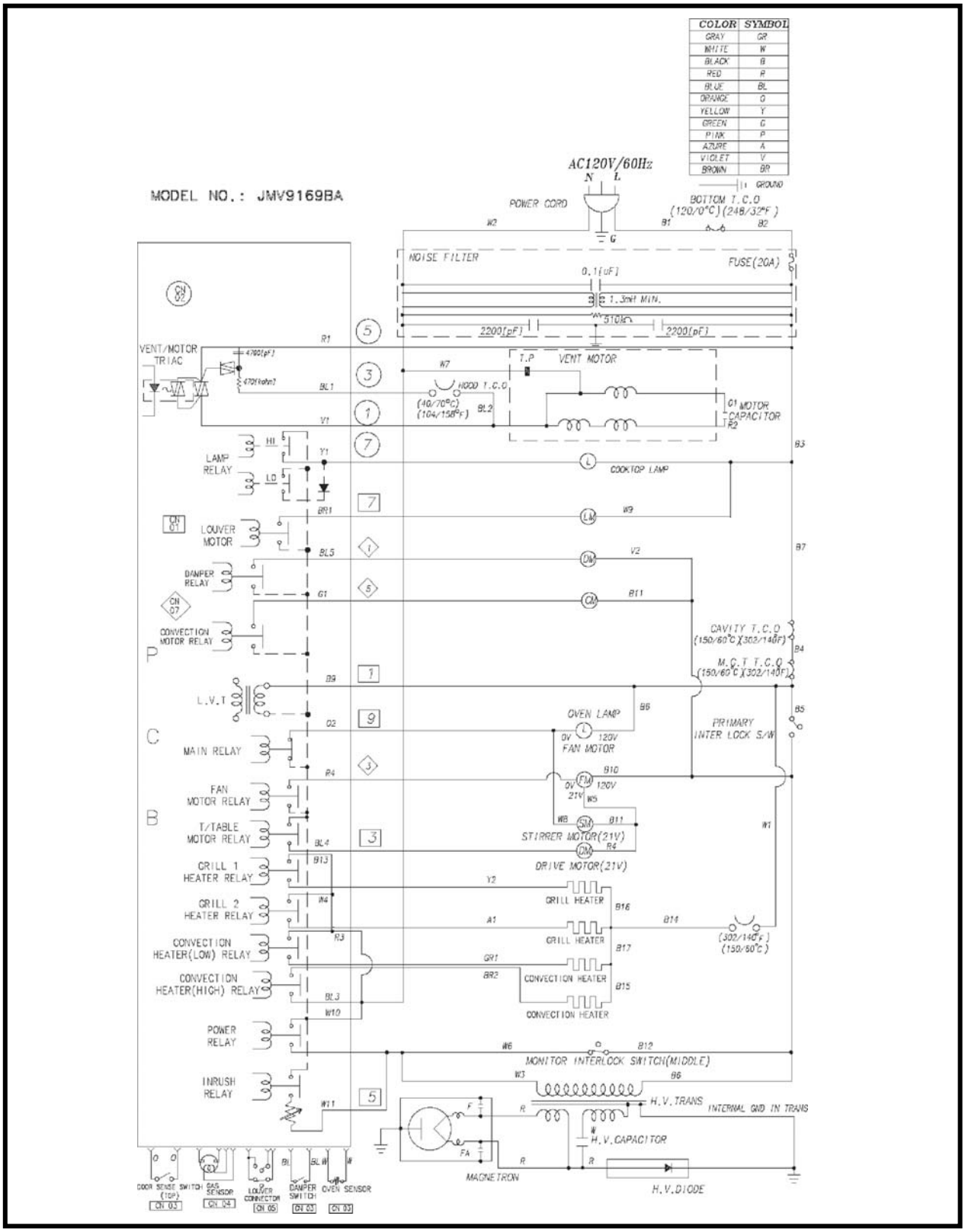
Wiring Diagram and Schematic

WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to microwave oven and discharge the high voltage capacitor before servicing, unless testing requires power.



JMV9169BA* Schematic Diagram

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